



Knights of Pi Math Tournament – March 17,
2018

Probability & Potpourri 5th/6th

1	What is the probability that a person picks 2 cards out of a standard 52 card deck and gets the same value both times without replacement?
2	Bob has to decide what to wear today. He has 2 different pairs of socks, 3 different pairs of shoes, and 5 different shirts. How many different sets of clothing can Bob wear?
3	I roll a dice 3 times. The numbers at the top of each roll are added. What is the probability that the sum equals 3?
4	Newport Math Club needs to choose 3 people to represent them at a meeting. If there are 8 people in math club, how many ways are there to choose 3 people?
5	What is the probability of flipping 4 coins and getting exactly 2 heads?
6	What is the largest 4 digit palindrome divisible by 4 and 9?
7	Mike has a 90 percent chance of making each individual free throw. What is the probability he makes at least 1 out of 3 shots?
8	In a group of 100 8th graders, almost all of them like to play video games. In particular, they like to play Minecraft, League of Legends, and Dota 2. There are 15 kids who like to play Dota 2, 35 that like League of Legends, and 60 that like Minecraft. Furthermore, there are 3 kids that like Dota 2 and League of Legends, 13 kids who like League of legends and Minecraft, 5 kids who like Dota 2 and Minecraft, and 2 kids who like all three. How many kids don't like any of the three?
9	John is taking a math test. For each problem he doesn't know, he has a $\frac{1}{3}$ chance of guessing it right if it is an algebra problem and a $\frac{3}{7}$ chance of guessing it right if it is a geometry problem. There are 65 algebra problems and 35 geometry problems. What is the probability John gets the next problem right?
10	Joe and I are playing a game. If I roll 4, 5, or 6, I win. If he rolls 1, 2, or 3, he wins. I get to roll first. What is the probability that I win if the game doesn't stop until someone wins?